Unit 7 - Week 5:

Assignment 5

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1) The integration \( \int_0^\infty x^2 e^{-x^2} \, dx \)
   a. is equal to 0
   b. is equal to \( \frac{1}{2} \)
   c. is equal to \( e^{-1} \)
   d. does not converge

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   (b)

2) Which of the options is/are true for the integral \( \int_1^\infty \frac{1}{x \ln x} \, dx \) ?
   a. Integral converges
   b. Integral does not converge
   c. The value of the integration is \( e \)
   d. The value of the integration is 1

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   (a)
3) Which of the options is/are true for the integral \[ \int_{1}^{\infty} \frac{1}{\sqrt{x(1+x)}} \, dx \]?

- a. Integral converges
- b. Integral does not converge
- c. The value of the integration is \( \pi \)
- d. The value of the integration is \( \frac{\pi}{2} \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) (d)

4) Which of the options is/are true for the integral \[ \int_{0}^{2} \frac{1}{\sqrt{x(2-x)}} \, dx \]?

- a. Integral converges
- b. Integral does not converge
- c. The value of the integration is \( \pi \)
- d. The value of the integration is \( \frac{\pi}{2} \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) (c)

5)
The integral \( \int_0^\infty \frac{1 - \cos x}{x^2} \, dx \) is convergent.

Check whether the above statement is true or false.

a. True
b. False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a)

6)
\[ \int_0^{\frac{\pi}{2}} \log(\sin x) \, dx \]

The integral is convergent.

Check whether the above statement is true or false.

a. True
b. False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a)

7)
\[ \int_1^\infty \frac{e^x}{\sqrt{x^2 - \frac{1}{2}}} \, dx \]

The integral is convergent.

Check whether the above statement is true or false.

a. True
b. False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b)

8)
Which of the options is/are true for the integral \( \int_0^\infty (1 + 2x)e^{-x} \, dx \)?

- a. Integral converges
- b. Integral does not converge
- c. The value of the integration is 3
- d. The value of the integration is -3

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a)  (c)

9)
Which of the options is/are true for the integral \( \int_{-\infty}^0 \frac{1}{x^2} \, dx \)?

- a. Integral converges
- b. Integral does not converge
- c. The value of the integration is -5
- d. The value of the integration is 1

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a)  (d)

10)
Fill in the blank with appropriate option: \( B(m + 1, n) = \) ________\( B(m, n) \).

- a. \( m + 1 \)
- b. \( m + n \)
- c. \( \frac{m}{m+n} \)
- d. \( \frac{m-n}{m+n} \)

(a)  (c)
(d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(c)